UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/372,879	08/12/99	SIDIROPOULOS	

EXAMINER	
S	RAJ-U36

ART UNIT	PAPER NUMBER
TRAN, T	

MMC2/0502

NEIL A STEINBERG ESQ
RAMBUS INC
2465 LATHAM STREET
MOUNTAIN VIEW CA 94040

DATE MAILED: 2814
05/02/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)	
	09/372,879	SIDIROPOULOS ET AL.	
	Examiner	Art Unit	
	THANH V TRAN	2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-28 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-28 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15)☒ Notice of References Cited (PTO-892)
16)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
18)☐ Interview Summary (PTO-413) Paper No(s). _____ .
19)☐ Notice of Informal Patent Application (PTO-152)
20)☐ Other: .

DETAILED ACTION

Drawings

1. Figures 1, 2A, 2B,3A and 3B should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

Claim Rejections - 35 USC § 112

2.The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3.Claims 3, 4, 10,11 and 18 are rejected under U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Regarding claims 3, 10 and 18 the prefix "- like" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "-like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-20 and 23-28 rejected under 35 U.S.C. 103(a) as being unpatentable over Okabe (U.S patent # 5,861,659) in view of Applicant Admitted Prior Art.

Referring to figure 5, Okabe discloses an integrated circuit device having a conductive pad 114a to receive a input signal, a first doped region 109 underlying and surrounding the conductive pad 114a, a conductive region 110 disposed in the first doped region 109, a first tap region 112a spaced apart from the and surrounding the first doped region 109. The first tap region surrounds the first doped region in a concentric shape and connected to through the base metal electrode 114a.

The first doped region 109 and the conductive region 110 are n type, and the first doping density (n) is less than the second doping density (n+).

The first tap 112a is a third doped region(p+ type) which is of an opposite conductivity type than the first doped region(n type).

The second tap region 103a is a fourth doped region, and the fourth doped region is a P type region.

Okabe does not show an output driver transistor having a drain region and a source region, wherein the drain region is electrically coupled to the conductive pad. Okabe does not teach a second tap region surrounding the output driver transistor, and electrically and physically coupled to a second supply voltage and the source region. Okabe also does not disclose the first tap region is a discontinuous region, and electrically coupled to a first supply voltage, the first and second supply voltages being ground, the bond pad having the conductive bonding layer includes a metal, the conductive tap region is a discontinuous region and the conductive region is polysilicon. Okabe does not show the output driver transistor is an NMOS type transistor, and the

conductive region is an doped layer positioned beneath the conductive region as recited in claim 22.

In figure 3A, Applicant Admitted Prior Art shows an output driver transistor having a drain region 400 and source region 380, wherein the drain region is electrically coupled to the conductive pad and the second tap region 410 connected to a supply voltage as ground potential (page 7, line 23). Applicant Admitted Prior Art discloses a second tap region 410 surrounding the output driver transistor. The purpose of doing so would have to control or limit parasitic losses in and enhance the frequency response of the signal line (page 8, lines 4-6). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the integrated circuit device of Okabe to connect an output transistor having drain region and source region, wherein the drain region is electrically coupled to the conductive pad and an tap region surrounding the output driver transistor to limit parasitic losses in and enhance the frequency response of the signal line as taught by applicant admitted prior art.

From the Applicant Admitted Prior Art, examiner notes that it would be obvious to one having ordinary skill in the art at the time the invention was made to modify the first tap region as a discontinuous region to adjust the equivalent parasitic input resistance to fine tune the frequency response characteristic of the I/O structure and bond pad (page 18, lines 4-7). It is well-known that the supply voltages are ground to reduce the electrostatic discharge and the cross-talk between the elements. The conductive bonding layer including a metal would be conventional use to decrease the parasitic resistance of the input signal and the output driver transistor is an NMOS type

transistor wherein the second tap region is P type in order to bias the well of the transistor to the source voltage. Examiner notes that It would be obvious to one having ordinary skill to decouple the conductive tap from the supply voltage to provide a predetermined equivalent series resistance between the doped region and the supply voltage.

7. Claims 21,22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okabe , in view of Applicant Admitted Prior Art and further in view of Corbett et al.(U.S patent # 5,751,015).

8. Okabe in view of Applicant Admitted Prior Art disclose most of the aspects of the instant invention (paragraph 6) except for the conductive region consisting of polysilicon and the conductive tap region consisting of an doped layer positioned beneath the conductive region. Corbett et al. teach using polysilicon under the bond pad to increase the sensitive of detecting damage under the bond pad from the wire bond pad formation (Column 4, lines 15-17). It would be obvious to one having ordinary skill to at the time the invention was made to make conductive region as polysilicon to increase the sensitive of detecting damage under the bond pad from the wire bond pad formation.

9 . Examiner notes that it would be obvious to one having ordinary skill at the time the invention to form the conductive tap region positioned beneath the conductive region to minimize the size of the bond pad and optimize the structures.

Conclusion

1. Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. Papers should be fax to Art Unit 2814 via the Art Unit 2814 Fax Center located in Crystal Plaza 4, room 4C23. The faxing of such papers must conform with the notice published in the official Gazette,1096 OG 30(15 November 1989). The Art Unit 2814 Fax Center number is (703)308-7722 or –7724. The Art Unit 2824 Fax Center is to be used only for papers related to Art Unit 2814 applications.

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to THANH V TRAN whose telephone number is 703-306-0208. The examiner can normally be reached on 8:00AM-5:00PM Monday through Friday or by e-mail via Thanh.Tran@uspto.gov.

3. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chuadhuri can be reached on 703-306 2794. The fax phone numbers for the organization where this application or proceeding is assigned are 703 -308-7722 for regular communications and 703 -305-3431 for After Final communications.

4. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

5. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S Class/Subclass(es): 257/693,784,758,760,336,334,408203,208,360,401 438/222,223,227,228	04/25/01
Other Documentation: none	
Electronic Database(s): EAST(USPAT)	04/27/01

Thanh Tran
April 30, 2001